



## NOAA Scientific Publications Report September 7-21, 2012

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#### 3. Other reports, book chapters, and internal publications

- a. None.

## 1. HIGHLIGHTED ARTICLES

- 1a. **Title:** *Conservation values in marine ecosystem-based management.*

**Journal:** Marine Policy

**Authors:** James Sanchirico (UC Davis), **Daniel K. Lew** (NMFS/AFSC), **Alan Haynie** (NMFS/AFSC), David Kling (UC Davis), and David F. Layton (University of Washington)

**Publication Date:** expected October 2012; accepted August 29.

**Summary:** A challenge in the implementation of ecosystem-based management requires quantifying trade-offs between the benefits from conservation and conventional commercial uses of marine resources. Failure to account for conservation values will bias the results of the analysis away from conservation actions. In this paper, an economic efficiency-based framework for evaluating trade-offs is utilized, and, for illustration, applied to assess the relative benefits and costs of conservation actions for the endangered western stock of the Steller Sea Lion (wSSL) in Alaska, USA. The example highlights many scientific and political challenges of using empirical estimates of the benefits and costs to evaluate conservation actions in the decision process, particularly given the public's large conservation values for the wSSL. The example also highlights the need to engage in stakeholder discussions on how to incorporate conservation into ecosystem-based management, and more specifically, coastal and marine spatial planning (CMSP). Without explicit consideration of these issues, it is unclear whether CMSP will better conserve and utilize ocean resources than the status quo.

**Significance:** The paper highlights a number of shortcomings and challenges with existing methods and information for incorporating conservation values into analyses of ecosystem based management and CMSP. The empirical illustration using Stellar Sea Lions is intended for illustrative purposes and not for policy purposes, particularly as the analysis is subject to a number of caveats. These caveats are clearly outlined in the paper, but there is potential for confusion by readers who will interpret the illustrative example to have policy implications.

**Press release/Roll out plan:** None

- 1b. **Title:** *A bibliometric analysis of NOAA's Office of Ocean Exploration and Research.*

**Journal:** Scientometrics

**Authors:** **Chris W Belter** (NESDIS/NODC/NOAA Central Library)

**Publication Date:** September 5, 2012 (online)

**Summary:** Bibliometric analysis techniques are increasingly being used to analyze and evaluate scientific research produced by institutions and grant funding agencies. This article uses bibliometric methods to analyze journal articles funded by NOAA OAR's Office of Ocean Exploration and Research (OER), an extramural grant-funding agency focused on the scientific exploration of the world's oceans. The articles identified were analyzed to determine the number of publications and citations received per year, subject, and institution. OER grant funding has resulted in over 400 peer-reviewed journal articles that have been cited over 4,200 times. OER-supported publications focus on

six major research topics: corals and coral reefs, NW Atlantic ecosystems, undersea geophysics, hydrocarbon seeps, arctic ocean ecosystems, and DNA analysis. Over 20% of OER-supported publications in Oceanography and Marine & Freshwater Biology have citation counts in the top 10% of all articles in these subject categories.

Full link: <http://dx.doi.org/10.1007/s11192-012-0836-0>

**Significance:** Extramural funding from OER has resulted in over 400 articles, which tend to be more highly cited than the global standard in their subject categories. Bibliometric analyses are useful for determining the topics and citation impact of grant funding offices.

**Press release/Roll out plan:** None

- 1c. **Title:** *Assessing the value of Microwave Sounding Unit-radiosonde comparisons in ascertaining errors in climate data records of tropospheric temperatures*

**Journal:** Journal of Geophysical Research

**Acceptance date:** August 27, 2012

**Expected publication date:** November 2012

**Authors and affiliations:** Carl A. Mears, Frank J. Wentz, **Peter W. Thorne** (CICS-NC, NOAA Cooperative Institute, NESDIS)

**Abstract:** Multidecadal-scale changes in atmospheric temperature have been measured by both radiosondes and the satellite-borne microwave sounding unit (MSU). Both measurement systems exhibit substantial time varying biases that need to be removed to the extent possible from the raw data before they can be used to assess climate trends. A number of methods have been developed for each measurement system, leading to the creation of several homogenized datasets. In this work, we evaluate the agreement between MSU and homogenized radiosonde datasets on multi-year (predominantly 5-year) time scales and find that MSU datasets are often more similar to each other than to radiosonde datasets and vice versa. Furthermore, on these times scales the differences between MSU datasets are often not larger than published internal uncertainty estimates for the RSS product alone and therefore may not be statistically significant when the internal uncertainty in each dataset is taken into account. Given the data limitations it is concluded that using radiosondes to validate multidecadal-scale trends in MSU data, or vice versa, or trying to use such metrics alone to pick a 'winner' is an ill-conditioned approach and has limited utility without one or more of additional independent measurements, or methodological, or physical analysis.

**Important conclusions:** In conclusion, when the similarity of the MSU datasets relative to radiosonde datasets is combined with the lack of statistical significance in many of the difference findings, we conclude that trying to determine which MSU dataset is “better” based on short-time period comparisons with radiosonde datasets alone cannot lead to robust conclusions. When they disagree the problem is under-constrained such that it is solely possible to conclude that one or both of the measurements is (are) biased relative to the true state of the measurand. Sadly, this is all too common in climate and is why SI traceable measurement programs such as the GCOS Reference Upper Air Network [Seidel et al., 2009] are vital to our future ability to monitor the changing climate.

**Significance:** There is uncertainty in all observations of the geophysical properties of the atmosphere and comparing two uncertain measures of unknown provenance can only take you so far.

The paper could cast doubt on current/past climate datasets, and provides a good argument for the need for programs like GCOS to provide stable, long-term datasets measured in standardized ways.

**Degree of controversy:** Medium. Calls into question oft repeated suppositions about the quality of different MSU products that have often been parroted quite loudly.

## 2. ADDITIONAL ARTICLES

### Elite Journals:

None.

### Top Tier Journals:

None.

### Intermediate-Tier Journals

**2b. Title:** *Consistent near-surface ocean warming since 1900 in two largely independent observing networks*

**Journal:** Geophysical Research Letters

**Accepted:** August 29, 2012

**Authors:** Gouretski, V., J. Kennedy, **T. Boyer** (Ocean Climate Lab/NODC/NESDIS), A.Kohl

**Abstract:** We compare historical global temperature time series, based on bias-adjusted sea-surface temperatures with independent temperature time series, for the upper 20 meter layer of the ocean based on the latest update of an historical hydrographic profile data set. Despite the two underlying data sets being different in number of data points, instrumentation and applied adjustments, both of the time series are consistent in showing an overall warming since 1900. We also extend records of temperature change in the upper 400m back to 1900. Noting that the geographic coverage is limited prior to 1950, the temperature change in the 0-400m layer is characterized by two periods of stronger temperature increase between 1900 and 1940-45 and between 1970 and 2003, separated by a period of little change.

**Significance:** We can use observed and modeled ocean heat content with more confidence to monitor global climate change.

**Degree of controversy:** Moderate. The findings are not controversial, but there may be some discussion of lack of data prior to 1955.

## 3. OTHER REPORTS, BOOK CHAPTERS, AND INTERNAL PUBLICATIONS

None.